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10/519,319	01/18/2005	Weishi Li	4202-01600	9115

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EXAMINER	
TRAN, DZUNG D	

ART UNIT	PAPER NUMBER
2613	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/519,319	LI ET AL.	
	Examiner	Art Unit	
	Dzung D. Tran	2613	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *25 September 2009*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-19* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-19* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Specification

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1-3, 5-8, 10-12, 14-17 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kubo et al. (EP 1054524) in view of Gerstel et al. US 7,099,578.

Regarding to claims 1, 6, 10 and 15, Kubo et al. disclose a method/apparatus of a WDM layer-based OchP (Optical Channel Protection) device capable of signal transmission on working channels and routing selection for protection channels between the transferred traffic and the WDM system (see FIG.4) comprising:

a transmitting module (transmitting module having operating channels la-4a, switching unit 28a,operating optical terminal unit 21a-24a and standby optical terminal unit 25a and 46a-see FIG.4) and

a receiving module (receiving module having operating optical terminal unit 21b-24b, standby optical terminal unit 25b and 46b ,switching unit 28b and operating channels l b-4b-see FIG.4);

the transmitting module and the receiving module each comprising

N working channels (operating optical terminal 21a-24a of transmitting module and optical terminal unit 21b-24b of receiving module) connected to receiving ends and to transmitting ends of N working channels of the WDM system respectively (see FIG.4 where in operating optical terminal 21a-24a of transmitting module and optical terminal unit 21 b-24b of receiving module are connected to transmitting end and receiving end of Mux/Demux 26a and 26b);

M protection channels (standby optical terminal unit 25a and 46a of transmitting module and standby optical terminal unit 25b and 46b of receiving module) connected to receiving ends and to transmitting ends of M protection channels of the WDM system respectively (see FIG.4 where in standby optical terminal unit 25a and 46a of transmitting module and standby optical terminal unit 25b and 46b of receiving module are connected to transmitting end and receiving end of Mux/Demux 26a and 26b);

a switching device (switching unit 28a of transmitting part and switching unit 28b of receiving part) designed to switch signals in the working channels to the protection channels and to switch signals in the protection channels to the working channels; wherein M and N are natural numbers and M in switching unit 28a of transmitting part designed to switch signals in the working channels (operating channel Ia through 4a) to the protection channels when fault occurs on working channels and switching unit 28b of receiving part designed to switch signals in the protection channels to the working

channels at the receiving end part and N operating system has N=4 which is greater channels assigned than M standby system has M=2).

Although Kubo does not specifically disclose that the switching device designed to switch signals according to switching requests from the WDM system. Kubo discloses in Figures 3 and 5 that the operating system detects the faulty of the operating channel and send the signal to the switch to switch the faulty operating channel to the standby channel (paragraphs 0046-0048). Thus, it would have been obvious to an artisan that the system of Kubo designed to switch signals according to switching requests from the WDM system. Furthermore, Gerstel, from the same field of endeavor, discloses a switch 13, 13' that selectively switch signals in the working channels to the protection channels and to switch signals in the protection channels to the working channels in according to switching requests from the WDM system (i.e., by a controller 3 and 3'that connected to switch 23, 25; see col. 8, line 54 to col. 10, line 45). Since, it is well known in the art that a controller is needed for a switch to perform the switching function.

It would have been obvious to a person of ordinary skill in the art at the time invention was made to include the teaching of Gerstel that is send the request signal or a control signal from controller to the switch for selectively switching specific operating channel to standby channel in the system of Kubo et al.. One of ordinary skill in the art would have been motivated to do that in order to switch a specific working channel to a specific protection channel.

Regarding to claims 2, 7, 11 and 16, Kubo et al. disclose everything claimed as applied above (see claims 1 and 10). In addition, Kubo et al. disclose the WDM layer-based OChP device further includes: wherein M is greater than 1 (see paragraph [0045] and FIG.4 where in standby channel is assigned by M=2).

Regarding to claims 3, 8, 12 and 17, Kubo et al. disclose everything claimed as applied above (see claims 1 and 10). In addition, Kubo et al. disclose the WDM layer-based OChP device further includes: wherein the switching device of the transmitting module comprises N 50:50 couplers (optical Couplers 31a through 34a-see paragraph [0040]; FIG.2 and FIG.4) and an NxM optical switch (combination of optical switches 35a and 36a-see paragraph [0040]; FIG.2 and FIG.4); one of the two output ports of each coupler being connected to a working channel in the WDM system (see paragraph [0040]; FIG.2 and FIG.4 where in one of the two output ports of each optical coupler 31 being connected toa operating optical signal 41a (operating optical terminal unit 21a) of WDM system), the other of the two output ports being connected to an input port of the NxM optical switch (see paragraph [0040]; FIG.2 and FIG.4 where in other of the two output ports of each optical coupler 31 being connected to an input port of the optical switches 35a and 36a) ; M output ports of the NxM optical switch being connected to the M protection channels of the WDM system respectively (see paragraph [0040]; FIG.2 and FIG.4 where in outputs from optical switches 35a and 36a being connected to the standby optical terminal units 25a and 46a of the WDM system) ; and

wherein the switching device of the receiving module comprises N 50:50 couplers (optical coupler 31a-see paragraph [0040]; FIG.2 and FIG.4) and an MxN optical switch

(combination of optical switches 35a and 36a-see paragraph [0040];FIG.2 and FIG.4), one of the two input ports of each coupler being connected to a working channel in the WDM system (see paragraph [0040]; FIG.2 and FIG.4 where in one of the two output ports of each optical coupler 31 being connected to a operating optical signal 41a (operating optical terminal unit 21b) of WDM system), and the other of the two input ports being connected to an output port of the MxN optical switch (see paragraph [0040]; FIG.2 and FIG.4 where in other of the two output ports of each optical coupler 31 being connected to an output port of the optical switches 35a and 36a) ; M input ports of the MxN optical switch being connected to the M protection channels of the WDM system respectively (see paragraph [0040]; FIG.2 and FIG.4 where in inputs from optical switches 35a and 36a being connected to the standby optical terminal units 25b and 46b of the WDM system).

Regarding to claims 5 and 14, Kubo et al. disclose everything claimed as applied above (see claim 1 and 10). In addition, Kubo et al. disclose The WDM layer-based OChP further includes: wherein said switching device of said transmitting module comprises an Nx (N+M) optical switch (optical switch 28a), the N+M output ports of the Nx(N+M) optical Switch being connected to the Nworking channels (operating optical terminal units 21a through 24a) and the M protection channels (standby optical terminal units 25a and 46a) of the WDM system respectively (see FIG.4 where in switching unit 28a has switching function as four operating channels inputs (N) and output four operating optical terminal units and two standby optical terminal units (N+M) so that (N+M) output ports of the Nx (N+M) optical switches being connected to operating

optical terminal units 21a through 24a of the WDM system and standby optical terminal units 25a and 46a of the WDM system respectively); and

wherein the switching device of the receiving module comprises an (N+M) x N optical switch (optical switch 28b), the N+M input ports of the (N+M) x N optical switch being connected to the N working channels (operating optical terminal units 21b through 24b) and the M protection channels (standby optical terminal units 25b and 46b) of the WDM system respectively (see FIG.4 where in switching unit 28b has switching function as input four operating optical terminal units and two standby optical terminal units (N+M) and outputs four operating channels (N) so that (N+M) input ports of the Nx (N+M) optical switches being connected to operating optical terminal units 21b through 24b of the WDM system and standby optical terminal units 25b and 46b of the WDM system respectively).

Regarding to claim 19, Gerstel disclose the switching requests are sent from the WDM system to the transmitting module and the receiving module simultaneously (i.e., by a controller 3 and 3'that connected to switch 23, 25; see col. 8, line 54 to col. 10, line 45).

3. Claims 4, 9, 13 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kubo et al. (EP 1054524) in view of Gerstel et al. US 7,099,578 and further in view of Frascolla et al. (US Pub Number2003/0161629).

Regarding to claims 4 and 13, Kubo et al. disclose everything claimed as applied above (see claims 1 and 10). In addition, Kubo et al. disclose the WDM layer-

based OChP device further includes: wherein the switching device of the transmitting module comprises N 50:50 couplers (optical couplers,31a through 34a-see paragraph [0040]; FIG.2 and FIG.4) and an NxM optical switch (combination of optical switches 35a and 36a-see paragraph [0040]; FIG.2 and FIG.4); one of the two output ports of each coupler being connected to a working channel in the WDM system (see paragraph [0040]; FIG.2 and FIG.4 where in one of the two output ports of each optical coupler 31 being connected to a operating optical signal 41a (operating optical terminal unit 21a) of WDM system), the other of the two output ports being connected to an input port of the NxM optical switch (see paragraph [0040]; FIG.2 and FIG.4 where in other of the two output ports of each optical coupler 31 being connected to an input port of the optical switches 35a and 36a) ; M output ports of the NxM optical switch being connected to the M protection channels of the WDM system respectively (see paragraph [0040]; FIG.2 and FIG.4 where in outputs from optical switches 35a and 36a being connected to the standby optical terminal units 25a and 46a of the WDM system) ; and

wherein the switching device of the receiving module comprises N 50:50 couplers (optical coupler 31a-see paragraph [0040]; FIG.2 and FIG.4) and an MxN optical switch (combination of optical switches 35a and 36a-see paragraph [0040]; FIG.2 and FIG.4), one of the two input ports of each coupler being connected to a working channel in the WDM system (see paragraph [0040]; FIG.2 and FIG.4 where in one of the two output ports of each optical coupler 31 being connected to a operating optical signal 41a (operating optical terminal unit 21b) of WDM system), and the other of the two input ports being connected to an output port of the MxN optical switch (see paragraph

[0040]; FIG.2 and FIG.4 where in other of the two output ports of each optical coupler 31 being connected to an output port of the optical switches 35a and 36a) ; M input ports of the MxN optical switch being connected to the M protection channels of the WDM system respectively (see paragraph [0040]; FIG.2 and FIG.4 where in inputs from optical switches 35a and 36a being connected to the standby optical terminal units 25b and 46b of the WDM system).

Even though Kubo et al. disclose N 50:50 coupler couples to NxM optical switch, Kubo et al. fail to specifically disclose N lx2 switches couples to NxM optical switch. Frascolla et al. disclose the WDM layer-based OChP device further includes: Nlx2 optical switches couples to Nxl optical switch (see FIG.8 where in plurality of lx2 optical switches).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time invention was made to modify Kubo et al. with the teaching of Frascolla et al. so as to use optical switches lx2 and increase the protection channels with switching technique from working channels to protection channels and vice versa in the WDM transporting system because it would allow the WDM transporting system improving the reliability as the number of protection channels increase and back up for the failure working channels.

Regarding to claims 9 and 18, Frascolla et al. and Kubo et al. disclose everything claimed as applied above (see claims 6 and 15). In addition, Kubo et al.

disclose routing low-priority traffic via the protection channels when the protection channels do not carry signals (see paragraph [0041] lines 28-29 and FIG.4).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time invention was made to modify Frascolla et al. with the teaching of Kubo et al. so as to increase the protection channels with switching technique from working channels to protection channels and vice versa in the WDM transporting system because it would allow the WDM transporting system improving the reliability as the number of protection channels increase and back up for the failure working channels.

Response to Arguments

4. Applicant's arguments filed 09/25/2009 have been fully considered but they are not persuasive.

Applicant agues that *as* shown in *Gerstel's* FIGS. 2B and 4, *Gerstel's* switch request originates at the monitor 4' in node 2 and is sent to the controller 3' in node 2, where the switch request is sent to both switch 13' in node 2 and controller 3 in node 1. In addition, controller 3 forwards the switch request to switch 13 in node 1. Since the monitor 4' is not included in the WDM system, *Gerstel's* switch request from the monitor 4' is not from the WDM system. As such, neither *Kubo* nor *Gerstel* discloses a switching device designed to switch signals in specified working channels to specified protection

channels or switch signals in specified protection channels back to specified working channels according to switching requests from the WDM system.

Examiner respectfully disagrees, as the rejection above. Although Kubo does not specifically disclose that the switching device designed to switch signals according to switching requests from the WDM system. Kubo discloses in Figures 3 and 5 that the operating system detects the faulty of the operating channel and send the signal to the switch to switch the faulty operating channel to the standby channel (paragraphs 0046-0048). Thus, it would have been obvious to an artisan that the system of Kubo designed to switch signals according to switching requests from the WDM system. Furthermore, Gerstel, from the same field of endeavor, discloses a switch 13, 13' that selectively switch signals in the working channels to the protection channels and to switch signals in the protection channels to the working channels in according to switching requests from the WDM system (i.e., by a controller 3 and 3'that connected to switch 23, 25; see col. 8, line 54 to col. 10, line 45). Since, it is well known in the art that a controller is needed for a switch to perform the switching function. Furthermore, Figure 2A of Gerstel shown the monitor 4' connect to controller 3 and the request for switching channel is from controller 3 not from the monitor 4'.

Conclusion

5. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dzung D Tran whose telephone number is (571) 272-3025. The examiner can normally be reached on 9:00 AM - 7:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vanderpuye Kenneth, can be reached on (571) 272-3078. The fax phone number for

the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR.
Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Dzung Tran

12/30/2009

/Dzung D Tran/

Primary Examiner, Art Unit 2613